



SAN LUIS OBISPO COUNTY

DEPARTMENT OF PLANNING AND BUILDING

Promoting the Wise Use of Land – Helping to Build Great Communities

TO: Planning Commission Members

FROM: John McKenzie

DATE: September 1, 2015

SUBJECT: DRC2015-00002 (Freeport-McMoRan) Oil Formation (Aquifer) Exemption – Additional Information

Attached is correspondence that was received after completion of the staff report, and includes the following documents

- Letter from the applicant to the California Division of Oil, Gas and Geothermal Resources;
- Letter from the State Water Resources Control Board (SWRCB) to the applicant; and
- Letter from the California Division of Oil, Gas and Geothermal Resources (DOGGR) to the applicant.

This correspondence is in support of Applicant's efforts to realign the existing Aquifer Exemption boundaries to reflect the active oil field boundaries. While not the subject of the County's application (DRC2015-00002) the aquifer exemption boundary change is a peripheral subject that is addressed in the staff report (see page 3) and is likely to be of interest to the public. DOGGRs has scheduled a public meeting (September 21st) on the aquifer exemption adjustment to hear from the public before making a final decision.

Given that a number of the remaining Phase IV 'county-approved-but-not-yet-built' wells would be placed within the proposed expanded exemption area (including injector wells), COA #2 was added to insure that before such drilling could occur in these areas outside of the 1974 boundaries, the applicant first receives approval at the state level as discussed above.



Freeport-McMoRan Oil & Gas
1200 Discovery Dr., Suite 500
Bakersfield, CA 93309

Telephone: 661-322-7600

June 1, 2015

Mr. Rob Habel
Technical Services Manager
California Division of Oil, Gas, and Geothermal Resources
801 K Street, MS 18-05
Sacramento, CA 95814

Sent Via Electronic Submission –
Hard Copy to Follow

**RE: Amendment to Proposed Boundaries
FM O&G Aquifer Exemption Application
Arroyo Grande Oil Field, San Luis Obispo County**

Dear Mr. Habel:

Attached please find two exhibits Freeport-McMoRan Oil & Gas (FM O&G) is submitting as formal amendments to the aquifer exemption application for the Arroyo Grande Oil Field in San Luis Obispo County. The attached exhibits should be utilized as replacements to the map labeled as "Exhibit 2" contained in the application submitted to your office on October 9, 2014.

The attached exhibits depict the revised boundaries FM O&G believes are appropriate to establish as part of an update to the existing aquifer exemption boundaries that were formalized in 1983. Current oil field operations validate that the productive limits of the oil field have expanded since 1983 and that an update to the aquifer exemption boundaries for the oil field is warranted.

FM O&G is submitting the proposed modifications based on its geologic and operational knowledge of the oil field as well as discussions conducted with staff from DOGGR and both the Regional and State Water Boards. FM O&G's revised application proposes to adjust the northern, southern, western, and eastern boundaries of the exempt aquifer in line with the known approximate containment boundary of the Pismo Formation oil sands.

Thank you in advance for your review of the attached material and for including the proposed amendment as part of FM O&G's application. Please do not hesitate to contact either of us should you or your staff have any questions regarding the proposed amendment to FM O&G's application.

Sincerely,

A handwritten signature in black ink, appearing to read 'John Martini'.

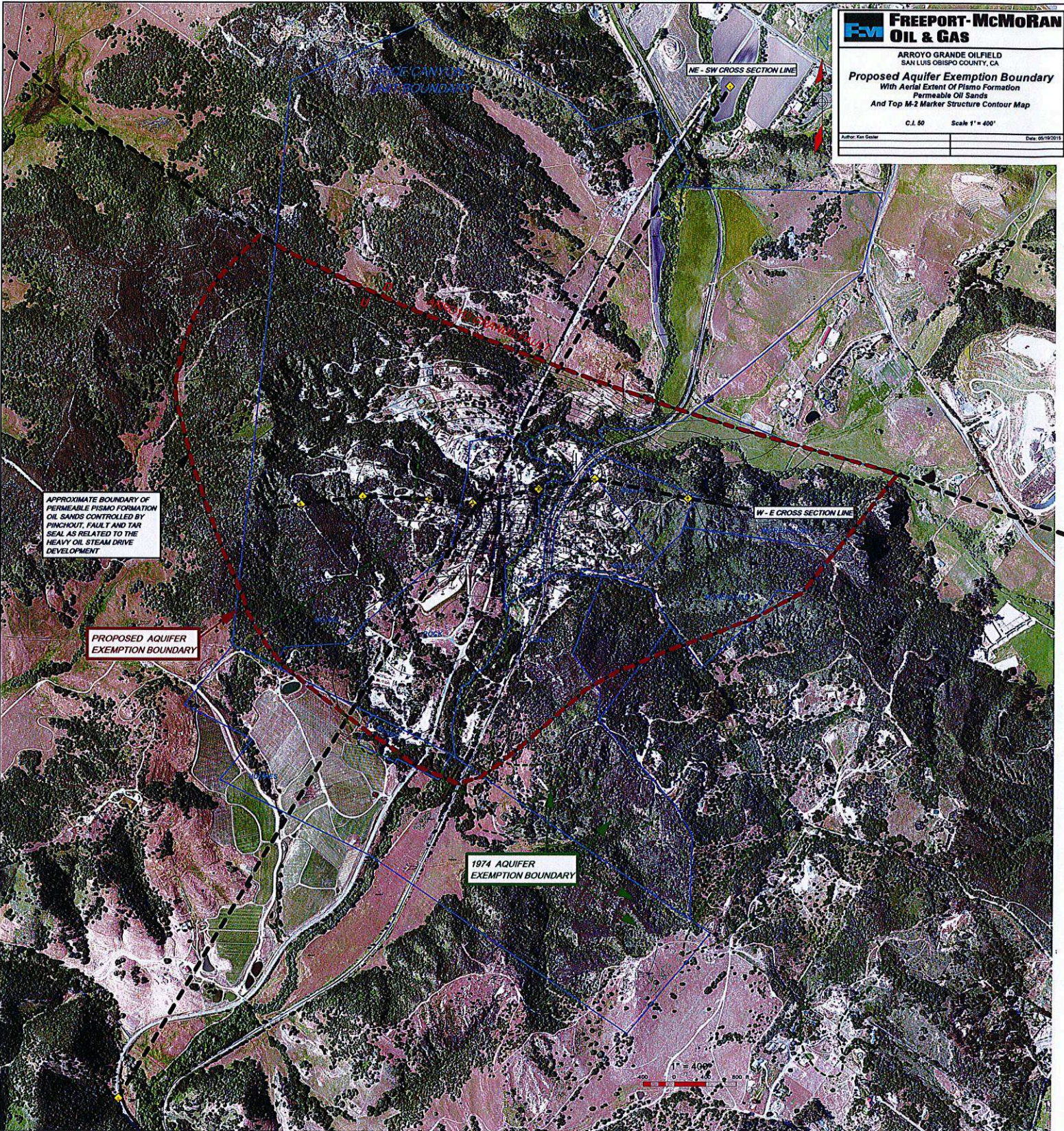
John Martini
Manager, EH&S and Government Affairs
Freeport-McMoRan Oil & Gas


A handwritten signature in green ink, appearing to read 'Kenneth R. Bork'.

Kenneth R. Bork
Senior EH&S Advisor/Agent
Freeport-McMoRan Oil & Gas

Attachments: (2)

CC: Mr. Steve Bohlen, DOGGR
Ms. Pat Abel, DOGGR
Mr. Jerry Salera, DOGGR
Mr. Scott Couch, State Water Resources Control Board
Mr. John Borkovich, State Water Resources Control Board
Ms. Janice Zinky, State Water Resources Control Board
Mr. Ken Harris, Central Coast Regional Water Quality Control Board
Mr. John Robertson, Central Coast Regional Water Quality Control Board
Mr. Aaron Katona, Central Coast Regional Water Quality Control Board



**FREEPORT-McMORAN
OIL & GAS**

ARROYO GRANDE OILFIELD
SAN LUIS OBISPO COUNTY, CA

Proposed Aquifer Exemption Boundary
With Aerial Extent Of Pismo Formation
Permeable Oil Sands
And Top M-2 Marker Structure Contour Map

C.I. 80 Scale 1" = 400'

Author: Ken Seiler Date: 05/19/2011

APPROXIMATE BOUNDARY OF
PERMEABLE PISMO FORMATION
OIL SANDS CONTROLLED BY
PINCHOUT, FAULT AND TAR
SEAL AS RELATED TO THE
HEAVY OIL STEAM DRIVE
DEVELOPMENT

PROPOSED AQUIFER
EXEMPTION BOUNDARY

1974 AQUIFER
EXEMPTION BOUNDARY

NE - SW CROSS SECTION LINE

W - E CROSS SECTION LINE

1" = 400'

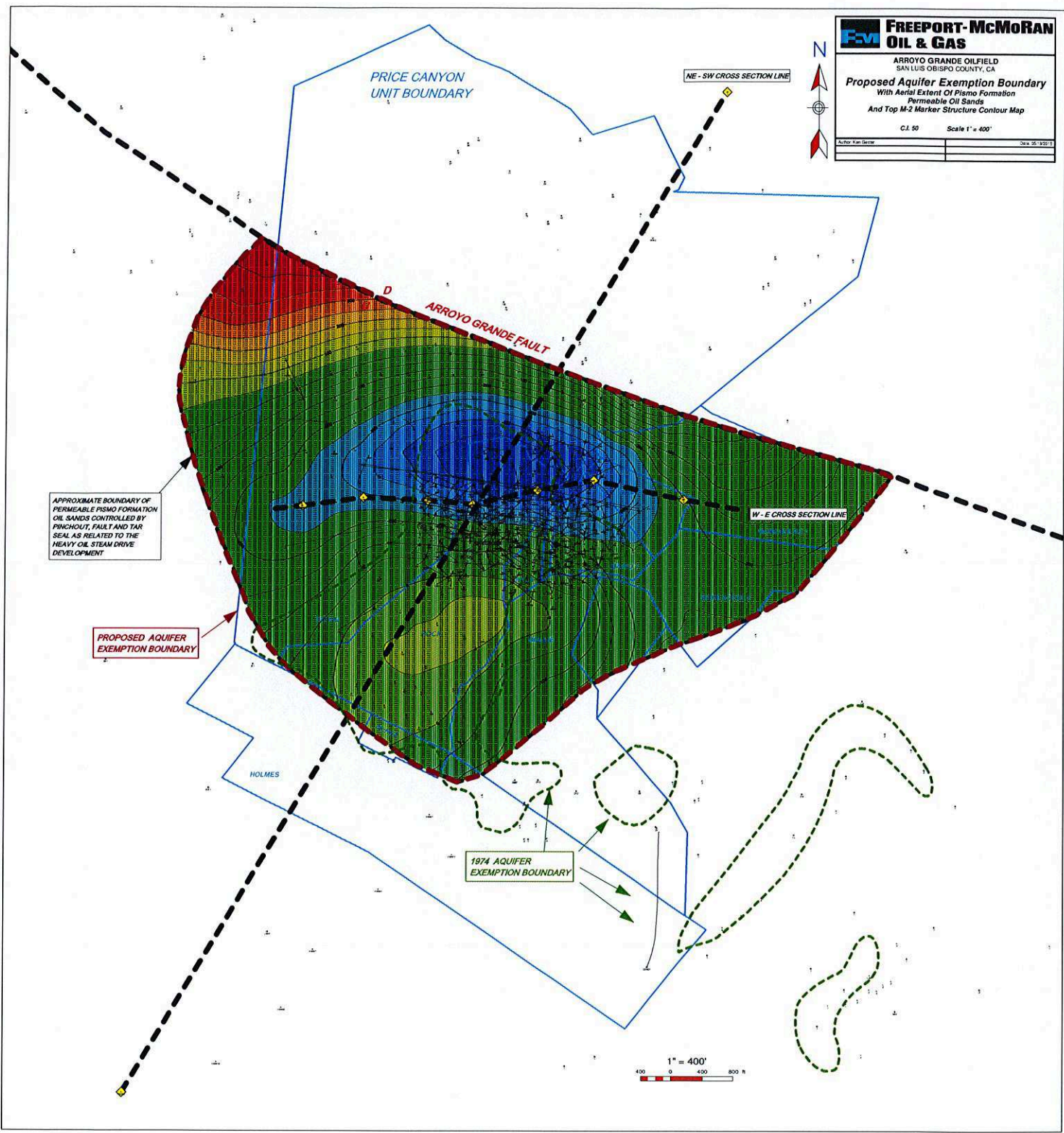

FREEPORT-McMORAN
OIL & GAS

ARROYO GRANDE OILFIELD
 SAN LUIS OBISPO COUNTY, CA

Proposed Aquifer Exemption Boundary
 With Aerial Extent Of Pismo Formation
 Permeable Oil Sands
 And Top M-2 Marker Structure Contour Map

C.I. 50 Scale 1" = 400'

Author: Kim Dettre	Date: 05/19/01



State Water Resources Control Board

Steven R. Bohlen, State Oil & Gas Supervisor
Department of Conservation
Division of Oil, Gas & Geothermal Resources
801 K Street, MS 18-05
Sacramento, CA 95814-3530
steven.bohlen@conservation.ca.gov

PRELIMINARY CONCURRENCE ON THE DOLLIE SANDS OF THE PISMO FORMATION AQUIFER EXEMPTION DOCUMENT, ARROYO GRANDE OILFIELD

Dear Mr. Bohlen:

State Water Resources Control Board staff, in consultation with the Central Coast Regional Water Quality Control Board staff (collectively Water Boards), have reviewed Freeport-McMoRan Oil & Gas LLC's request for an aquifer exemption for the Dollie Sands member of the Pismo Formation in the Arroyo Grande Oilfield (Exemption Request). The Exemption Request proposes an aquifer exemption for the Dollie Sands of the Pismo Formation within an area of approximately 1.5 square miles of the Arroyo Grande Oilfield.

Pending the State's public comment process, the Water Boards staff preliminarily concurs with the Exemption Request. As required by Public Resources Code (PRC) section 3131(a)(1) and 40 CFR §146.4, it appears that the proposed exempted area does not currently serve as a source of drinking water and it cannot now and will not in the future serve as a source of drinking water because it is currently hydrocarbon energy producing and is expected to continue to produce commercial quantities of hydrocarbons in the future. In addition, as per PRC section 3131(a)(2), the injected fluids are not expected to affect the quality of water that is, or may reasonably be, used for any beneficial use, as long as the conditions described below are satisfied for current and future underground injection control (UIC) projects in the aquifer.

The requirement of PRC section 3131(a)(3) is also satisfied because a detailed technical demonstration has been made that the injected fluid is expected to remain in the proposed exempted area due to a combination of geologic conditions and hydraulic controls. Geologic features include a synclinal structure, a fault barrier on the north side of the proposed exempted area (Arroyo Grande fault), and stratigraphic conditions on the south side of the proposed exempted area (decreasing permeability and transmissivity from the Dollie Sands transition into Miguelito member of the Pismo Formation). Injected fluids in the proposed exempted area should also be contained hydraulically, both vertically and laterally, due to the inward hydraulic gradient created by oilfield dewatering activities in the proposed exemption area.

Approval of Class II UIC projects and permits will involve a joint review by the Division of Oil, Gas and Geothermal Resources (DOGGR) and the Water Boards. DOGGR and the Water Boards will consider incorporating the following conditions into Class II injection project approvals and permits to provide assurances that the injected fluid will remain in the proposed exempted area:

- 1) Use of sentry groundwater monitoring wells on the boundaries of the proposed exempted area where groundwater is currently or could potentially be of beneficial use. The quantity, spacing, and location of these wells would be designed to ensure early detection of any change in water quality outside of the proposed exempted area due to UIC activities.
- 2) Creation of a buffer zone between the location of Class II UIC wells and the boundary of the proposed exempted area such that the injected fluids remain within the proposed exempted area.
- 3) Monitoring and maintenance of formation pressure and groundwater elevations in the proposed exempted area to ensure that groundwater elevations within the exempted area do not exceed the synclinal structural containment feature.

If you have any questions regarding this matter, please contact Mr. John Borkovich at (916) 341-5779 or john.borkovich@waterboards.ca.gov.

Sincerely,

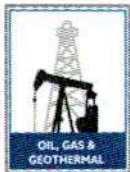


Jonathan Bishop
Chief Deputy Director

cc: John Martini, Government Affairs Manager
Freeport-McMoRan Oil and Gas LLC
john_martini@fmi.com

Ken Harris, Executive Officer
Central Coast Regional Water Quality Control Board
ken.harris@waterboards.ca.gov

Pat Abel, District Deputy
Department of Conservation
Division of Oil, Gas & Geothermal Resources
pat.abel@conservation.ca.gov



Department of Conservation

Division of Oil, Gas, and Geothermal Resources – District 3

195 South Broadway • Suite 101

Orcutt, CA 93455

(805) 937-7246 • FAX (805) 937-0673

MEMORANDUM

DATE: August 6, 2015

TO: Janice Zinky, State Water Board
Oil & Gas Monitoring Unit Chief

Ken Harris, Regional Water Quality Control Board
Executive Officer

FROM: Patricia A. Abernethy 
District Deputy

SUBJECT: AQUIFER EXEMPTION – DOLLIE SANDS, PISMO FORMATION, ARROYO
GRANDE FIELD

The Division believes the information regarding the proposed exemption transmitted to you electronically demonstrates the proposed exemption meets the criteria specified in Code of Federal Regulations, title 40, section 146.4 because the groundwater within the proposed exemption does not currently serve as a source of drinking water and will not serve as a source of drinking water in the future. The aquifer within the extent of the proposed exemption is actively producing hydrocarbons and is expected to produce commercial quantities of hydrocarbons in the future.

On Wednesday July 29, 2015, we met with you and your staff to present and discuss the information supporting the proposed exemption. The information included a description of the hydrocarbon and groundwater resources, geology, and hydrogeology which included a discussion of the reduction of piezometric potential by net withdrawal of fluids from the syncline. The Division previously provided the information to you electronically prior to the July 29 meeting, and provided revised information to you electronically on August 4, 2015.

The information submitted electronically represents the Division's submission of the proposed exemption to the State Water Resources Control Board. Upon receiving from the State Water Resources Control Board written concurrence for the proposed exemption the Division will proceed with the public notification announcing the initiation of the public comment period, and the posting the supporting data on our website for public review.